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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF	:
WALTER GOERENZ, ET AL.	: EXAMINER: ROSSI, J.
SERIAL NO: 09/851,159	:
FILED: MAY 9, 2001	: GROUP ART UNIT: 1733
FOR: LAMINATED GLAZING UNIT AND A PROCESS FOR MANUFACTURING THEREOF WITH A CORROSION-PROTECTED TRANSPARENT SURFACE COATING	:

APPEAL BRIEF

COMMISSIONER FOR PATENTS
P. O. BOX 1450
ALEXANDRIA, VIRGINIA 22313-1450

SIR:

This is an appeal to the Board Appeals concerning the final rejection of Claims 1-7 and 9-22 of the above-identified application:

REAL PARTY OF INTEREST

Saint Gobain Glass France is the real party of interest in the above-identified application.

RELATED APPEALS AND INTERFERENCES

There are no appeals or interference proceedings in applications related to the present application at the Board of Appeals and Interferences.

STATUS OF CLAIMS

Claims 1-7 and 9-22 are active in the application. Claim 8 has been canceled. Claim 4 stands withdrawn from consideration.

STATUS OF AMENDMENTS

The amendment filed March 10, 2004 in response to the issues raised in the final Office Action of November 13, 2003 has not been entered into the record.

The amendment filed April 12, 2004 in response to the Advisory Action of April 5, 2004 has been entered into the record.

SUMMARY OF THE INVENTION

The present invention is directed to process for manufacturing a laminated glazing unit having at least two panes that form a composite with an inside and an outside. A first coated pane is provided on a surface that faces the inside of the composite with a corrosion protected transparent surface coating and at least one adhesive layer for coupling the panes together. The process of the invention comprises

removing the transparent surface coating proximate at least one edge of the coated pane to create an exposed region between about 0.1 mm and about 5 mm from a peripheral edge of the pane along a main surface of the pane,

applying an opaque protective layer proximate the peripheral edge of the coated pane after removal of the transparent surface coating therefrom, the protective layer being substantially impermeable to diffusion of water vapor and covering at least a portion of the exposed region of the coated pane and extending across a portion of the transparent surface coating beyond an edge thereof proximate the peripheral edge of the pane, and

coupling the panes together with an adhesive layer disposed therebetween to form the laminated glazing unit.

Support for the summary of the invention can be found at page 7 of the text and Figure 1 of the application.

ISSUES

Whether Claims 1, 5, 7-9, 18 and 19 are obvious based on 35 USC 103 over Winter et al, U. S. Patent 5,999,136 in view of Koontz, U.S. Patent 4,994,650 and Tweadey, II et al, U.S. Patent 5,131,967.

Whether Claims 11-17 are obvious based on 35 USC 103 over Winter et al, U. S. Patent 5,999,136 in view of Tweadey, II et al, U.S. Patent 5,131,967.

Whether Claims 21-22 are obvious based on 35 USC 103 over Winter et al, U. S. Patent 5,999,136 in view of Shukuri et al, U.S. Patent 6,555,202 and Marquardt et al U.S. Patent 5,908,657.

Whether Claims 2 and 3 are obvious based on 35 USC 103 over Winter et al, U. S. Patent 5,999,136 in view of Koontz, U.S. Patent 4,994,650 and Tweadey, II et al, U.S. Patent 5,131,967 and further in view of Eisenfuhr et al DE 2344616 and Glaser, DE 19632240.

Whether Claim 6 is obvious based on 35 USC 103 over Winter et al, U. S. Patent 5,999,136 in view of Koontz, U.S. Patent 4,994,650 and Tweadey, II et al, U.S. Patent 5,131,967 and further in view of Carter et al, U.S. Patent 5,030,503.

Whether Claims 10 and 20 are obvious based on 35 USC 103 over Winter et al, U. S. Patent 5,999,136 in view of Koontz, U.S. Patent 4,994,650 and Tweadey, II et al, U.S. Patent 5,131,967 and further in view of Goerenz et al, U.S. Patent No. 5,099,105.

GROUPING OF CLAIMS

Dependent Claims 2-10 do not stand or fall together with independent Claim 1.

Dependent Claims 12-17 do not stand or fall together with independent Claim 11.

Dependent Claims 19 and 20 do not stand or fall together with independent Claim 18.

ARGUMENT

Appellants maintain their position of record that the Winter et al patent indicates is not relevant to the objective and the process of the present invention as claimed, because it is only concerned with a method of providing a glazing with an antenna, and in no way describes or suggests a method of so shaping and fabricating the edge region of two glass panels that are to be bonded together as to provide a protective seal around the periphery of the glazing that is produced. In order to provide a protective seal (prevention of corrosion and water penetration), transparent coating material as layer 5 must be removed in a width ranging from 0.1 to 5 mm from the peripheral edge of a first pane of an eventual composite of at least two panes with the subsequent positioning of a layer of opaque protective material (substantially impermeable to diffusion of water vapor) that covers at least an exposed region of the coated pane and extending across a portion of the transparent surface coating beyond an edge thereof proximate the peripheral edge of the pane. This feature is clearly shown in the illustration of Figure 1. Fabrication of the glazing is completed by covering the entire transparent surface coating and opaque protective layer with adhesive layer material (commonly PVB) and bonding of a glass pane to the PVB layer. No description of such a process is found in Winters et al, and, indeed, the Examiner admits on page 2, lines 11-12 of paragraph 2, that Winters et al does not "express a concern with providing a protective seal for a glazing." Yet, this is the objective of the process of the present invention!

What, in fact, the disclosure of the patent is directed to is a method of forming antenna systems on a glazing which are a directly connected antenna and a capacitively coupled antenna (see column 4, lines 57-59). As Figure 3 of the patent shows, the supporting disclosure at column 3, line 58 to column 4, line 24 describes the directly connected antenna system where a single glass ply has an electrically conductive transparent coating 112 secured to a portion of a surface of glass ply 116. The coating is of an electroconductive ceramic hot melt paint as described in column 3 of the patent. An edge portion of the electrically conductive transparent coating 112 is covered with an electrically conductive connector 124, to which a conductive lead is attached. As to the capacitively coupled antenna embodiment of the patent, the same is shown diagrammatically in Fig. 4 and is described in columns 4 and 5 of the patent. That portion of Fig 4 that comprises ply 232 and connector 224 corresponds directly with ply 116 and connector 124 (not 112 as incorrectly indicated in the response of April 12, 2004) of Fig. 3. In the capacitively coupled structure of Fig. 4, the other side of ply 232 is provided with a coating (234) of PVB adhesive which bonds to a surface of glass ply 216. The panel of this embodiment is completed by the provision of a transparent electroconductive coating 212 as shown. (Thus, layer 212 corresponds in function to transparent electroconductive coating 112 in Fig. 3, but is separated from direct contact with connector 224 by ply 232 and adhesive PVB layer 234.) In operation electrical connection between layer 212 and connector 224 is achieved by a capacitive coupling because the intervening ply 232 functions as a dielectric body between the two electrically conductive layers 212 and connector 224. Thus, it is clear that the reference in no way teaches or suggests the present invention which has nothing to do with the fabrication of an antenna system on a glazing, but has everything to do with a modification of the edge structure of two bonded glass panels such that the result of the

modification is to prevent corrosion of the structure by being impervious to water. The Winter et al patent fails to teach or suggest this procedure as claimed.

Appellants do not concur with the statements by the Examiner in the first paragraph of paragraph 3 of the Advisory Action. It is clear from Fig 4 of Winters et al that PVB layer 234 and ply 232, as dielectric materials, separate transparent electroconductive coating 212 from electrically conductive connector 224, thereby forming a capacitively coupled antenna, whereas Fig 3 shows transparent electroconductive coating 112 in direct contact with electrically conductive connector 124. Since the two figures show two different antenna systems, the statement by the Examiner that PVB layer 234 (of Fig 4) is opposite surface coating 112 and connector 124 on the outside surface of ply 116 (of Fig 3) is clearly erroneous. Further, the equating of Winters et al connector layer 124 with the surface coating and overlapping protective layer (6) of Fig 1 of the present application is not understood. Connector layer 124 in no way is positioned or functions as an equivalent to the opaque protective layer (6) of the present glazing. Connector 124, as an electrically conductive component of the antenna system of the reference, is on an outside face of a glass ply, while layer (6) of the present invention is a part of the interior lamination between two glass panes, whose primary purpose is to provide a weather seal over the transparent surface coating (5) around the periphery of the product glazing. Clearly, connector layer 124, which is shown in Fig 2 of the patent as a relatively small, localized device, can not be equated with opaque protective layer (6) of the present invention.

Appellants note the discussion by the Examiner in the paragraph bridging pages 3 and 4 of the Advisory Action dated April 23, 2004. However, of what relevance is the discussion of the paragraph to the presently claimed method of manufacturing a laminated glazing as set forth by the series of steps in each of method Claims 1, 18 and 22 to provide the glazing with edge protection to corrosion and penetration by water?

As to the discussion by the Examiner in the last paragraph of paragraph 3 on page 4 of the Advisory Action of April 23, 2004, even if the connector 224 is positioned or located on the inside ply 216 on the surface coating 212, how does such a disclosure of a small localized electrically conductive device (see Figs 1 and 2 of the patent) teach or suggest the steps of the present method embodiments as claimed to protect the periphery of a laminated glazing from corrosion and penetration by water vapor? Further, how does the positioning of a small, very localized electrical connector on an electroconductive coating between glass plys teach or suggest a laminated glazing formed from at least two glass panes bonded together by an adhesive layer, wherein a first coated pane is provided on its surface facing the inside of the composite with a transparent surface coating, the transparent surface coating being spaced from at least one edge of the main surface of the coated pane by a distance ranging from about 0.1 mm to about 5 mm, and a transition region extending between coated and uncoated regions of the main surface of the pane being covered with a protective layer that is impermeable to water vapor?

Appellants remain of the view that the combination of ply 232 and connector 224 of Fig 4 corresponds to the combination of ply 116 and connector 124 of Fig 3, because, in each instance, a connector is in direct contact with a glass ply. Of course, in the embodiment of Fig 3 the connector element is also in direct contact with the transparent electroconductive coating 112, whereas in Fig 4, the glass ply 232 and adhesive PVB layer 234, both dielectric materials, separate the connector 224 from the transparent electroconductive coating 212 thereby providing an antenna that is capacitively coupled. Appellants remain of the opinion that even in view of the discussion above, the disclosure of Winter et al is not germane to the invention as claimed. It must be noted that a very important feature of the invention is that in the process of preparing a laminated glazing, at least two panes are joined together, as is clear from the language of the claims and as shown in Fig 1 of the application. Thus, Fig 3 of the

Winters et al patent is irrelevant to the present invention solely on the basis that it only shows a single glass ply and not a composite of at least two plies or panes adhesively joined together which provide the structural context of the present process of the covering of a transparent coating on its peripheral area between two glass panes by an opaque protective layer. As To Fig 4 of the patent, although it shows a composite or laminated structure of two plies or panes, nevertheless, connector 224 is positioned alone on the outside of one glass ply and is in no direct connection whatever with layer 212. However, the present claims require in the context of two laminated glass panes that the edge or margin area of a transparent coating between the glass panes be trimmed back to a small extent so as to expose a region between about 0.1 mm to about 5 mm from the peripheral edge of the pane, whereby, upon the application of an edge protecting opaque protective layer on the peripheral portion of the transparent layer, the protective layer extends over the exposed edge of the transparent layer thereby completely sealing the edge of the transparent layer from the elements. No such disclosure is provided by the Winters et al patent. Clearly, the Winters et al patent does not show or suggest any claimed aspect of the present invention.

As appellants have stated previously on the record, it is not clear how the disclosure of the Koontz patent is relevant to the disclosure of Winters et al, because the two patents are not directed to similar subject matter, although both at least pertain to the attachment of accoutrements to glass windshields or window glazings. Moreover, neither reference contains any disclosure matter that is relevant to the processing of the edges or peripheries of glass panes or plies that are to be bonded together so as to provide an effective edge seal about the glazing so as to provide protection of the glazing from penetration by water vapor and from corrosion. In fact, the Koontz patent is directed to the aspect of windshield production in which a windshield is provided with a heating mechanism to clear the windshield of undesired films of water. More particularly, the teachings of Koontz are directed to the

provision of an electric field detector for such windshields which senses a change in the voltage in the electrically heatable coating of the windshield which would be associated with a break in the leads to the bus bars that supply electrical energy. The detector interrupts electrical power to the windshield to prevent arcing and additional damage to the heatable windshield (col 1, lines 6-14).

As to the portion of the disclosure of the Koontz patent at column 4, lines 18-25, deemed relevant to the present invention by the Examiner, it is in no way relevant to or concerned with the processing and configuring of the edge or periphery portion(s) of at least two glass panes that are joined together so as to prevent corrosion at the edges or peripheries and to prevent water vapor penetration of the glass laminate of the glazing. In fact, the discussion at the bottom of column 3 of the patent, in simply stating that a transparency (windshield) is formed by bonding two glass plies by an intervening layer of PVB, is as much discussion that is provided by Koontz in discussing glazing construction!

Fig 1 of Koontz shows a single transparency 10 with bus bars 22 and 24. A coating 18 is provided on the transparency, but it is specifically well spaced apart from the periphery of the sheet of transparency as is clear from the position of edge portion 26 of the coating. In fact, the position of the coating 18 is such that it leaves specific portions of top bus bar 24 uncovered (but totally covers bottom bus bar 22) so that electrical connection to bus bar 24 can be made without contact with bottom bus bar 22 and coating 18. Optionally, the periphery of the transparency can be provided with a mask to aid in the precise positioning of the coating on the transparency so that portions of bus bar 24 are left exposed. In the application of coating 18, which is a layered structure of a layer of silver sandwiched between two zinc stannate layers, the entire peripheral area of the transparency 10 is masked by a material from the absolute edge of the transparency to dotted line structure 26 which defines the periphery of the coating 18. In other words, the mask prevents deposition of the layers of

coating materials of the coating by magnetron sputtering beyond defining edges 26 of the coating so as to leave an uncoated marginal area on the transparency surface. This uncoated marginal area is formed so as to leave electrically conductive leads 32, 34, 38 and 40 of leads 28 and 30 and lead 42 uncoated by coating 18! How is such a teaching relevant to the requirements of the present method and glazing claims where, in the provision of a transparent coating 5 on the surface of one glass pane, a very small width of the coating ranging from 0.1 to 5 mm is removed from the peripheral edge of the pane so that upon subsequent covering of the coating by a protective opaque layer that completely hides or covers the edge of the transparent coating, followed by application of an adhesive PVB layer and then bonding of a second glass pane to complete the laminate, a completely protected edge region of the glazing is formed? In Fig 2 of the patent, as glass ply 16 is bonded to glass ply 12 through intervening adhesive PVB layer 14, the figure shows nothing other along the edge portion then the PVB layer making contact with ceramic band 44. No need for edge protection in this region of the laminate is taught by Koontz. Clearly, the Koontz patent does not teach or suggest the claimed product and method aspects of the present invention. Moreover, because Koontz and Winters et al are directed to completely different areas of glazing production, it is not understood how the two patents can be reasonably combined.

With respect to the Tweadey et al, patent, the same discloses laminated glazings for use as architectural windows, motor vehicle windows and the like. As such, the glazings are constructed by bonding to glass plies, identified in the patent and drawings as nos. 12 and 14. These plies are bonded to each other by PVB layer 26. The remaining layer component is film stack 16, which, as described at column 4, lines 16-30, is commonly comprised of a thin central layer of electrically conductive metal such as silver that is sandwiched between two dielectric layers of zinc oxide for the utilitarian purpose of electrical heating, and in the event the glazing is used in applications where a reduced solar load is desired, the stack usually is

comprised of multiple films of silver or other metals. The objective of the reference is to provide glazings that exhibit improved environmental durability (column 3, lines 34-49). As disclosed in the paragraph bridging columns 6 and 7 of the patent, the progression of edge corrosion of the laminate is inhibited by the removal of film stack 16 in the edge or marginal area of the stack identified as 24. Because of the removal of film stack material in this peripheral area, in the bonding of the two glass plies 12 and 14 to each other, PVB layer material comes into direct contact with surface 18 of substrate ply 12. Thus, PVB fills in the gap between the two glass plies in area 24 to achieve an edge or periphery sealing effect. However, this disclosure directly teaches against the present invention, because it is clear from the present invention that any sealing which PVB (layer 4) achieves between glass panes 2 and 3 of the present laminate is entirely insufficient to achieve an edge sealing effect. Rather, the finding of the present invention is that a superior edge sealing effect is achieved by first removing transparent coating material from the a marginal area of pane 2, and then applying a layer of opaque protective layer material over the periphery of the glass pane such that it completely covers and extends over the edge of transparent coating as shown in Fig 1 of the specification. Edge sealing of the laminated product is then completed by the bonding of the other glass pane to pane 2 by the intervening adhesive layer 4, which is normally PVB. Clearly, Tweadey does not suggest the present invention as claimed. Thus, the combination of Winters et al, Koontz and Tweadey et al does not suggest the method embodiments of the invention as claimed in Claims 1 and 18.

CLAIMS 2 AND 3

Claims 2 and 3 are directed to the aspects of the invention in which transparent surface coating material is removed along the edge of a coated pane by abrasion, and that this abrasion can be simultaneously achieved with a grinding treatment that grinds the peripheral

edge of a glass pane. It is clear, however, from the discussion above concerning the Winters et al, Koontz and Tweadey et al patents, that none of these patents teaches layer removal by abrasion and grinding of edge portions of the peripheries of glass panes. Further, Eisenführ only shows the lamination of glass panes by intervening plastic adhesive layers (PVB) which also achieves the lamination of internal electrically conductive layers therein. Glaser discloses a method and apparatus for the removal of local coatings on flat glass sheets. The method of the reference comprises the treatment of the glass surface with a device comprising a twin grinding head with two grinding discs of different widths in order to remove some portions of the coating from the glass according to a specific pattern. Optionally, the head is coupled to a cutting head which enables the removal of coating and further enables the cutting of the glass panes in a single operation. There is no teaching or suggestion in Glaser of a method of grinding the edges of glass sheets or panes. Certainly, none of the references teaches or suggests the simultaneous abrasion of layer material from the edge portions of a glass pane and the rounding or beveling of the edge portions. Accordingly, Claims 2 and 3 are free of the prior art.

CLAIMS 5, 13 AND 14

Although the Winters et al patent discloses an electroconductive ceramic paint to form the electrical connectors in the antenna systems described as well as for the leads of the antenna systems disclosed, there is clearly no teaching or suggestion of a protective layer formed from a bakable ceramic paint about the periphery of a glass pane, in the context that it is positioned between an adhesive layer such as of PVB and a transparent surface that is laminated under the protective coating. The Koontz and Tweadey et al patents contain no disclosure that is relevant to this feature of the present invention as set forth in Claims 5, 13 and 14.

CLAIM 6

Claim 6 is directed to the feature of the invention in which the protective layer covers substantially the entire main surface of the coated pane that is provided with the transparent surface coating. Certainly, none of Winters et al, Koontz and Tweadey et al show or suggest such a provision of a protective layer over an underlying transparent layer that is bonded to a glass pane. Carter et al only shows the surface coating of a glass panel in a pattern with a ceramic enamel coating composition that is comprised of a ceramic frit such as lead borosilicate. The composition is applied in a patterned fashion as shown in the figures of the patent, and then is covered with a transparent reflective coating. Clearly, this teaching on the part of the reference is irrelevant to the features of the present invention so that the combined paten disclosures do not suggest the invention aspect of Claim 6.

CLAIM 7

Winters et al discloses the use of an electroconductive ceramic paint in the preparation of the antenna devices disclosed, particularly in the formation of the connector patches and antenna elements shown and described in the patent. However, because the patent discloses the use of electroconductive ceramic paints only in the formation of connector patches and antenna elements of an antenna system, there is no teaching or suggestion of the application of such material in the form of a frame about the periphery of a laminated glazing. Further, in Koontz, the marginal area about the rim of the transparency in the reference is entirely uncoated, while in Tweadey et al, only PVB is positioned between glass panes or plies with no ceramic paint employed to form a marginal area shown or suggested in the reference. Claim 7 is not obvious over the combined references.

CLAIMS 11-17

As is clear from the discussion above concerning Winters et al, the patent contains no teaching or suggestion of a laminate formed of at least two panes, wherein a first coated pane is provided on the inside surface thereof with a transparent surface coating, with the transparent surface coating specifically being removed from the first coated pane at a distance of about 0.1 mm to about 5 mm so as to expose an uncoated margin about the periphery of the pane, and then having applied thereto a protective opaque coating or layer which completely overlaps the transparent surface coating in the transition region of the transparent layer at the periphery of the pane, with the result that when a second pane is bonded to the first pane on its coated side through an intervening thermoplastic layer such as PVB, a sealed laminate is obtained that is impermeable to water vapor.

Tweadey et al does not improves upon the deficiencies of Winters et al, because Tweadey et al only shows the bonding of glass plies by an intervening PVB layer in the context of such a bonding configuration to be sufficient to prevent edge corrosion of a prepared laminate. As noted above, this is contrary to the improvement of the present invention where a different approach is done to achieve improved corrosion and water vapor permeation resistance. Accordingly, the combined prior art references fail to teach or suggest the laminate of Claim 11.

Claim 12 stands separately patentable because there is no teaching or the slightest suggestion of disposing a protective layer at an angle of about 180°to 190° over a transition region of an underlying transparent coating.

CLAIMS 10 AND 20

Claims 10 and 20 are directed to the aspect of the invention in which at least one of the glass panes of the present assembly is bent. None of Winters et al, Koontz and Tweadey et al show or suggest the bending of glass panes or assemblies of glass panes. Although Goerenz et al show the bending of decorative assembled glass laminates that are used as automobile windows that contain a heating element, there is no teaching or suggestion of the bending of glass panels that are configured as laminates in the manner of the present invention. Accordingly, these two claims are believed clear of the applied prior art.

CLAIMS 21 AND 22

As is clear from the discussion above concerning the Winter et al patent, a method is disclosed by which a directly connected antenna and a capacitively coupled antenna are prepared. In Winters et al, the directly connected antenna only employs the positioning of the leads of an antenna on a glass substrate and the positioning of a patch of a connector in contact with a small portion of the leads of the antenna. Further, the capacitively coupled antenna is similar to the construction of the directly connected antenna except that a laminate of a glass pane and a layer of adhesive (PVB) intervenes between the connector and the lead(s) of the antenna system. Thus, there is no teaching or suggestion of a laminated glazing of a pair of glass panes whose peripheral edges have been ground, with the two panes being adhesively coupled by a transparent surface coating, an opaque protective layer and an adhesive layer, wherein specifically the protective layer covers at least a portion of a main surface of the panes and extends across a portion of the transparent surface coating beyond an edge thereof proximate an edge of the pane.

As to Shukuri et al, the same is clearly of secondary interest because it only shows the provision of a tempered glass sheet that has a stepped down portion that enables the "smoothing" of a window in an automobile when the window pane is installed in a vehicle whereby the stepped peripheral portion of the pane fits into a supporting member that is attached to the vehicle thereby enabling a flush fit of the glass pane with the automobile. The patent is absolutely silent as to any processing of glass panes to be bonded together that are so edge treated as to enable a complete seal from the environment to prevent corrosion of the glass laminate that is formed. Thus, Shukuri et al does not improve upon the deficiencies of Winters et al.

Although the Marquardt et al patent discloses a method of forming a glass laminate from glass panels that have ground peripheral edges that are bonded together by an intervening layer of PVB, sealing of the peripheral edge of the bonded laminate is achieved by applying an ethylene polymer emulsion. Clearly, this method is not even close to the method by which edge sealing of a laminated glass structure is achieved. Thus, Marquardt et al does not improve upon the deficiencies of Winters et al. Accordingly, laminate glazing Claim 21 is not suggested by the combined references. Moreover, because only one of the references discloses a method of edge sealing a glass laminate and because this method involves the use of a polymer emulsion, it is clear that the method of the invention as defined in Claim 22 is not suggested by the combined prior art patents.

Appellants remain of the opinion that the continuing rejection of the claims of the present application is erroneous and that the rejection of the claims by the Examiner should be REVERSED.

Respectfully submitted,

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FINDING OF FACTS

1. The Winters et al patent is entirely directed to a method of forming antennas in window glazings that are primarily used in the manufacture of automobiles. The antennas disclosed are of the directly connected or capacitively coupled type. There is no teaching or suggestion of a method by which glass panels can be assembled such that they are adhesively bonded together, with one of the panels having a layer of a transparent coating whose edge of margin is so treated as to be covered by an opaque protective layer, such that the entire assembly, when completed is effectively protected against corrosion and water vapor penetration. Further, the connectors and leads of antenna systems disclosed in the patent are not functionally equivalent to any component of the laminate configuration of the present laminate product nor are they positioned in an assembly in a manner similar to the opaque protective layer and the transparent coating of the of the present laminate.

2. The Koontz patent is directed to an electric field detector for a heatable windshield. As such, none of the processing described in the reference by which a transparency is provided with the various elements necessary for a heatable windshield, and also the components of the electric field detector which is the central feature of the patent is relevant to the laminate of the present invention and to the method by which the laminate is formed.

3. The Tweadey et al patent discloses a method of manufacturing a laminated glazing unit in which two glass panels are bonded together by an intervening PVB layer. A fourth panel is also provided which is identified as a film stack that is formed of a conductive metal film between two films of a dielectric such as zinc oxide. As such, although there is a teaching of a sealing along the periphery of the assembled laminate from the corrosive effects of the environment, the sealing that is achieved is solely in the context that the PVB layer, which binds the assembled layers together, fills in the gap in the peripheral region identified

as 24. The simple sealing of a laminate by the likes of a PVB layer is not the method claimed in the present invention.

CONCLUSIONS OF LAW

1. Claims 1, 5, 7-9, 18 and 19 are not obvious based on 35 USC 103 over Winter et al, U. S. Patent 5,999,136 in view of Koontz, U.S. Patent 4,994,650 and Tweadey, II et al, U.S. Patent 5,131,967.

2. Claims 11-17 are not obvious based on 35 USC 103 over Winter et al, U. S. Patent 5,999,136 in view of Tweadey, II et al, U.S. Patent 5,131,967.

3. Claims 21-22 are not obvious based on 35 USC 103 over Winter et al, U. S. Patent 5,999,136 in view of Shukuri et al, U.S. Patent 6,555,202 and Marquardt et al U.S. Patent 5,908,657.

4. Claims 2 and 3 are not obvious based on 35 USC 103 over Winter et al, U. S. Patent 5,999,136 in view of Koontz, U.S. Patent 4,994,650 and Tweadey, II et al, U.S. Patent 5,131,967 and further in view of Eisenfuhr et al DE 2344616 and Siegfried, DE 19632240.

5. Claim 6 is not obvious based on 35 USC 103 over Winter et al, U. S. Patent 5,999,136 in view of Koontz, U.S. Patent 4,994,650 and Tweadey, II et al, U.S. Patent 5,131,967 and further in view of Carter et al, U.S. Patent 5,030,503.

6. Claims 10 and 20 are not obvious based on 35 USC 103 over Winter et al, U. S. Patent 5,999,136 in view of Koontz, U.S. Patent 4,994,650 and Tweadey, II et al, U.S. Patent 5,131,967 and further in view of Goerenz et al, U.S. Patent No. 5,099,105.

APPENDIX

Claim 1. A process for manufacturing a laminated glazing unit having at least two panes forming a composite with an inside and an outside, a first coated pane being provided on a surface facing the inside of the composite with a corrosion protected transparent surface coating and at least one adhesive layer for coupling the panes together, the process comprising:

removing the transparent surface coating proximate at least one edge of the coated pane to create an exposed region between about 0.1 mm and about 5 mm from a peripheral edge of the pane along a main surface of the pane;

applying an opaque protective layer proximate the peripheral edge of the coated pane after removal of the transparent surface coating therefrom, the protective layer being substantially impermeable to diffusion of water vapor and covering at least a portion of the exposed region of the coated pane and extending across a portion of the transparent surface coating beyond an edge thereof proximate the peripheral edge of the pane;

coupling the panes together with an adhesive layer disposed therebetween to form the laminated glazing unit.

Claim 2. The process of claim 1, wherein the transparent surface coating is removed along the edge of the coated pane by abrasion.

Claim 3. The process of claim 2, wherein the surface coating is removed by abrasion substantially simultaneously with a grinding treatment for grinding the peripheral edge.

Claim 4 (Withdrawn): The process of claim 1, wherein the protective layer covering the edge of the transparent surface coating is an organic coating.

Claim 5. The process of claim 1, wherein the protective layer covering the edge of the transparent surface coating is a bakable ceramic paint.

Claim 6. The process of claim 5, wherein the protective layer covers substantially the entire main surface of the coated pane provided with the transparent surface coating.

Claim 7. The process of claim 5, wherein the protective layer covering the edge of the transparent surface coating is in the form of a frame.

Claim 9. The process of claim 5, further comprising baking the ceramic paint, wherein at least one of the panes including the coated pane is formed of glass.

Claim 10. The process of claim 1, wherein at least one of the panes comprises curved glass formed by bending, the curved glass being provided with the transparent surface coating prior to bending.

Claim 11. A laminated glazing unit comprising at least two panes coupled together by an adhesive layer disposed therebetween to form a composite with an inside and an outside, a first coated pane provided on a surface facing the inside of the composite with a transparent surface coating, the transparent surface coating being spaced from at least one edge of the main surface of the coated pane by a distance between about 0.1 mm and about 5 mm, and a

transition region extending between coated and uncoated regions of the main surface of the pane being covered with a protective layer impermeable to diffusion of water vapor.

Claim 12. The laminated glazing unit of claim 11, wherein the protective layer is disposed at an angle of between about 180° and about 190° in the transition region extending between coated and uncoated regions of the main surface.

Claim 13. The laminated glazing unit of claim 11, wherein the protective layer is a bakable paint.

Claim 14. The laminated glazing unit of claim 13, wherein the bakable paint is electrically conducting.

Claim 15. The laminated glazing unit of claim 11, wherein the transparent surface coating comprises at least one of silver and an antireflection dielectric.

Claim 16. The laminated glazing unit of claim 11, wherein the transparent surface coating comprises a silver layer abutting an antireflection dielectric layer.
surface coating comprises a silver layer abutting an antireflection dielectric layer.

Claim 17. The laminated glazing unit of claim 11, wherein the adhesive layer comprises a synthetic thermoplastic.

Claim 18. A process for manufacturing a laminated glazing unit having at least two panes forming a composite with an inside and an outside, the process comprising:

applying a transparent surface coating to a first pane along substantially an entire main surface facing the inside of the composite;

removing the transparent surface coating proximate at least one peripheral edge of the first pane to create an exposed region of the main surface of the pane;

applying a ceramic protective coating proximate the peripheral edge of the first pane after removal of the transparent surface coating therefrom, the protective coating being substantially impermeable to diffusion of water vapor and covering at least a portion of the exposed region of the first pane and extending across a portion of the transparent surface coating beyond an edge thereof proximate the at least one peripheral edge of the pane;

bonding the panes together to form the laminated glazing unit.

Claim 19. The process of claim 18, wherein the panes are adhesively bonded together under at least one of heat and pressure.

Claim 20. The process of claim 18, further comprising bending at least one pane.

Claim 21. A laminated glazing unit comprising:

a pair of glass panes, each of the panes having a ground peripheral edge;

a transparent surface coating;

an opaque protective layer substantially impermeable to diffusion of water vapor; and

an adhesive layer;

wherein the protective layer covers at least a portion of a main surface of one of the panes and extends across a portion of the transparent surface coating beyond an edge thereof proximate an edge of the pane; and

wherein (1) the transparent surface coating is disposed between the opaque protective layer and one of the glass panes, (2) the opaque protective layer is disposed between the adhesive layer and the transparent surface coating, and (3) the transparent surface coating, opaque protective layer, and adhesive layer are disposed between the glass panes.

Claim 22. A process for manufacturing a laminated glazing unit from a pair of glass panes, the process comprising:

grinding a peripheral edge on each of the glass panes;

disposing a transparent surface coating, a ceramic protective layer, an opaque protective layer and an adhesive layer between the glass panes, with (1) the transparent surface coating disposed between the opaque protective layer and one of the glass panes and (2) the opaque protective layer disposed between the adhesive layer and the transparent surface coating;

covering at least a portion of a main surface of one of the glass panes with the protective layer, with the protective layer also extending across a portion of the transparent surface coating beyond an edge thereof proximate the peripheral edge of the glass pane.